Patent Claims

1. A method for the protection switching of transmission devices, comprising
at least two switching devices (N_A, N_D) which in each case terminate a transmission section formed of operating links (WE_{A-D}, WE_{D-A}) and/or protection links (PE_{A-D}, PE_{D-A}), and between which information is exchanged over this transmission section, wherein, in the case of a fault on the relevant transmission section, the information hitherto transmitted over this section is diverted, as necessary, to the protection link in accordance with the determination of priority criteria and logical connection information,
characterized
in that the information is linked into MPLS packets, in that two oppositely directed unidirectional MPLS connections are logically associated with one another, the two oppositely directed MPLS connections in each case connecting the same switching devices,
in that a number of linear transmission sections are joined together so that a ring line system is formed, wherein operating link and protection link are conducted via different physical paths, and
in that a multiplicity of protection links (PE_{A-D}, PE_{C-B}, PE_{C-D}) share a jointly reserved transmission capacity.

2. The method as claimed in claim 1, characterized in that a unidirectional ring line system is formed by using unidirectional switching devices, but the logical association of the two oppositely directed unidirectional MPLS connections is still retained.

3. The method as claimed in claim 1 or 2, characterized in that in the protection switching case, a protection switching request is generated to which other priorities are assigned.

4. The method as claimed in claim 1 to 3, characterized in that the logical connection information is the MPLS connection number (Label Value).

5. The method as claimed in claim 1 to 4, characterized in that local and global priority tables are provided in which the order of rank of the priorities is specified.

6. The method as claimed in one of the preceding claims, characterized in that when a protection switching request arrives in the receiving switching device, a protection switching protocol is generated which is supplied only once to the transmitting switching device via the protection link (PE).

7. The method as claimed in one of the preceding claims, characterized in that a total failure and degradation of an operating link are determined in the monitoring device of the receiving switching device.

8. The method as claimed in one of the preceding claims, characterized in that the switching devices are constructed as MPLS cross-connect switching systems.

9. The method as claimed in one of the preceding claims, characterized in that the protection switching, if necessary, is effected by driving a switching device (S_1) contained in the transmitting switching device and by using a selection device (SN) arranged in the receiving switching device.

10. The method as claimed in one of the preceding claims, characterized in that special data are transmitted via the protection link (PE) at times free of operating disturbances.

11. The method as claimed in one of the preceding claims, characterized in that the special data are

arranged as low-priority traffic which are automatically displaced from said low-priority traffic in the case of protection switching of the high-priority traffic.

12. The method as claimed in one of the preceding claims, characterized in that the selection device (SN) is constructed as a switching network and/or as a simple switching element.

13. The method as claimed in one of the preceding claims, characterized in that the protection switching protocol is exchanged cyclically between the transmitting switching device and the receiving switching device.

14. The method as claimed in one of the preceding claims, characterized in that group protection switching is provided in that all MPLS connections conducted via the same physical path are logically combined to form a group, and for the group formed in this manner at least two protection switching connections are generated, in each case one of these protection switching connections being set up via an operating link (WE) and another one of these protection switching connections being set up via the protection link (PE).

15. The method as claimed in one of the preceding claims, characterized in that, in the case where group protection switching is provided, the monitoring devices ($\ddot{U}E_0 \ldots \ddot{U}E_n$) only monitor the at least two protection switching connections.

16. The method as claimed in one of the preceding claims, characterized in that the connections conducted via the at least one operating link (WE) and the connections conducted via the protection link (PE) are set up via an MPLS signaling protocol which also

reserves bandwidth in the transmission devices and specifies the path of the operating link (WE_1) and of the protection link (PE).